

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-56 (cancelled).

57. (currently amended) An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end for introduction of said spinal implant into the spine, an opposite trailing end, spaced apart sides therebetween, and a ~~longitudinal~~ mid-longitudinal axis passing through said leading and trailing ends;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement toward the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a first plurality of surface projections ~~bone engaging structures~~ formed on said upper and lower surfaces of said implant, said plurality of surface projections being adapted to engage bone, said plurality of surface projections including;

at least a first and a second surface projection each having a first facet configuration with ~~one of said first plurality of bone engaging structures~~ ~~comprising a surface projection having~~ at least one forward facing facet directed at least in part toward said leading end and at least one rearward portion directed

at least in part toward said trailing end, said forward facet and said rearward portion having a length and a slope, the length of said forward facet being longer than the length of said rearward portion, the slope of said rearward portion being steeper than the slope of said forward facet, said first and second surface projections each having a peak along a first line that is transverse to the mid-longitudinal axis of said implant; and

at least a third and a fourth surface projection each having a second facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said second facet configuration having a length and a slope, the length of said forward facet of said second facet configuration being longer than the length of said rearward portion of said second facet configuration, the slope of said rearward portion of said second facet configuration being steeper than the slope of said forward facet of said second facet configuration, said third and fourth surface projections each having a peak along a second line that is transverse to the mid-longitudinal axis and off-set from the first line transverse to the mid-longitudinal axis, said second facet configuration of said third and fourth surface projections being different from said first facet configuration of said first and second surface projections~~said projections having opposed side facets between said forward facet and said rearward portion, each of said side facets having at least a first portion in a plane passing through the longitudinal axis of said implant at an angle to the longitudinal axis.~~

58. (currently amended) The spinal implant of claim 57, wherein said rearward portion of each of said first and second surface projections is perpendicular to at least one of said upper and lower surfaces of said implant.

59. (currently amended) The spinal implant of claim 57, wherein said rearward portion of each of said first and second surface projections is at an angle to at least one of said upper and lower surfaces of said implant.

60. (original) The spinal implant of claim 59, wherein said angle is less than 90 degrees.

61. (currently amended) The spinal implant of claim ~~57~~59, wherein said forward facets of said first and second surface projections face the same direction ~~angle is greater than 90 degrees.~~

62. (currently amended) The spinal implant of claim 57, wherein said first and second surface projections each include opposed side facets between said forward facet and said rearward portion, each of said side facets having at least a first portion in a plane passing through and being at an angle to the mid-longitudinal axis of said implant ~~opposed side facets intersect each other.~~

63. (currently amended) The spinal implant of claim 62, wherein said opposed side facets intersect each other ~~converge to form a peak at the top of each of said surface projections.~~

64. (currently amended) The spinal implant of claim ~~57~~63, wherein said peaks are aligned along lines that are at least one of ~~perpendicular~~, parallel, and diagonal to the ~~longitudinal~~ mid-longitudinal axis of said implant.

65. (currently amended) The spinal implant of claim 6257, wherein said side facets have a second portion passing through and being at an angle, wherein the angles of said first portion and said second portion are different.

66. (currently amended) The spinal implant of claim 57, wherein at least one of said surface projections includes a left forward side facet and a right forward side facet relative to the mid-longitudinal axis of said implant, said left forward side facet and said right forward side facet being directed toward said leading end and said sides, respectively, of said implant.

67. (currently amended) The spinal implant of claim 57, wherein at least one of said surface projections includes a left rearward side facet and a right rearward side facet relative to the mid-longitudinal axis of said implant, said left forward side facet and said right forward side facet being directed toward said trailing end and sides, respectively, of said implant.

68. (currently amended) The spinal implant of claim 66, wherein at least one of said surface projections includes a left rearward side facet and a right rearward side facet relative to the mid-longitudinal axis of said implant, said left forward side facet and said right forward side facet being directed toward said trailing end and sides, respectively, of said implant.

69. (currently amended) The spinal implant of claim 6257, wherein adjacent side facets of adjacent surface projections are spaced apart to define a groove therebetween.

70. (original) The spinal implant of claim 69, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.

71. (currently amended) The spinal implant of claim 70, wherein at least one of said grooves is parallel to the ~~longitudinal~~mid-longitudinal axis of said implant.
72. (currently amended) The spinal implant of claim 70, wherein at least one of said grooves is at an angle to the ~~longitudinal~~mid-longitudinal axis of said implant.
73. (currently amended) The spinal implant of claim 72, wherein said angle is less than 90 degrees to the ~~longitudinal~~mid-longitudinal axis of said implant.
74. (original) The spinal implant of claim 72, wherein at least two of said grooves cross each other.
75. (original) The spinal implant of claim 70, wherein at least one of said grooves has a horizontal cross-sectional shape selected from one of a v-shape, u-shape, and a box-like shape.
76. (currently amended) The spinal implant of claim 57, wherein said surface projections are oriented relative to one another to form an array.
77. (currently amended) The spinal implant of claim 57, wherein said surface projections are geometrically disposed relative to one another.
78. (original) The spinal implant of claim 57, wherein said upper and lower surfaces of said implant are at least in part arcuate.
79. (original) The spinal implant of claim 57, wherein at least one of said leading end, trailing end, and sides are curved.
80. (original) The spinal implant of claim 57, wherein said sides are curved.
81. (original) The spinal implant of claim 57, wherein each of said leading end, trailing end, and sides are curved.

82. (original) The spinal implant of claim 81, wherein said leading end, trailing end, and sides form a circle.
83. (original) The spinal implant of claim 57, wherein said upper and lower surfaces of said implant are at least in part planar.
84. (original) The spinal implant of claim 57, wherein said upper and lower surfaces converge along the length of said implant.
85. (original) The spinal implant of claim 57, wherein said implant comprises a material other than bone.
86. (original) The spinal implant of claim 57, wherein said implant comprises bone.
87. (original) The spinal implant of claim 86, wherein said bone includes cortical bone.
88. (original) The spinal implant of claim 57, wherein said implant comprises bone growth promoting material.
89. (original) The spinal implant of claim 88, wherein said bone growth promoting material is selected from one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
90. (original) The spinal implant of claim 57, wherein said implant is treated with a bone growth promoting substance.
91. (original) The spinal implant of claim 57, wherein said implant is a source of osteogenesis.
92. (original) The spinal implant of claim 57, wherein said implant is at least in part bioabsorbable.
93. (original) The spinal implant of claim 57, wherein said implant comprises metal.

94. (original) The spinal implant of claim 93, wherein said metal is ASTM material suitable for use as a spinal fusion implant.
95. (original) The implant of claim 93, wherein said metal includes titanium.
96. (original) The implant of claim 57, wherein said implant comprises a plastic material.
97. (original) The implant of claim 57, wherein said implant comprises a ceramic material.
98. (original) The implant of claim 57, wherein said implant is formed of a porous material.
99. (original) The implant of claim 57, wherein said implant is formed of a material that intrinsically participates in the growth of bone from one of the adjacent vertebral bodies to the other of the adjacent vertebral bodies.
100. (original) The spinal implant of claim 57, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent vertebral bodies.
101. (original) The spinal implant of claim 57, wherein said spinal implant is a fusion implant.
102. (original) The spinal implant of claim 101, wherein said upper and lower surfaces include at least one opening to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.
103. (original) The spinal implant of claim 101, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.

104. (original) The spinal implant of claim 103, wherein said implant has a cap for closing said access opening.

105. (original) The spinal implant of claim 103, wherein said upper and lower surfaces include at least one opening in communication with said internal chamber to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.

106. (original) The spinal implant of claim 103, wherein said internal chamber is capable of containing bone growth promoting material.

107. (original) The spinal implant of claim 106, wherein said bone growth promoting material is selected from one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

108. (original) The spinal implant of claim 57, further comprising at least one opening capable of retaining fusion promoting materials.

109. (withdrawn) The spinal implant of claim 57, further comprising at least one cut cleaving said surface projection into at least two portions.

110. (withdrawn) The spinal implant of claim 109, further comprising at least a second cut cleaving said surface projection into at least four portions.

111. (withdrawn) The spinal implant of claim 109, where said cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.

112. (withdrawn) The spinal implant of claim 110, where said second cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.

113. (withdrawn) The spinal implant of claim 109, wherein said cut is oriented along one of the ~~longitudinal~~mid-longitudinal axis of said implant, an axis perpendicular to the ~~longitudinal~~mid-longitudinal axis of said implant, and an axis at an angle between the ~~longitudinal~~mid-longitudinal axis and the axis perpendicular to the ~~longitudinal~~mid-longitudinal axis of said implant.

114. (currently amended) The spinal implant of claim 57, ~~further comprising a second plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said second plurality of bone engaging structures comprising a surface projection having wherein said second facet configuration further includes~~ at least a left forward side facet and a right forward side facet directed at least in part toward said leading end and said sides, respectively, and at least one rearward facet directed at least in part toward said trailing end, said left and right forward side facets having at least a first portion in a plane passing through and being at an angle to the ~~longitudinal~~mid-longitudinal axis of said implant.

115. (currently amended) The spinal implant of claim ~~57~~114, wherein said third and fourth surface projections~~second plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

116. (currently amended) The spinal implant of claim 114, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length

of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said third facet configuration further including a
~~third plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said third plurality of bone engaging structures comprising a surface projection having at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and at least one forward facing facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane~~ passing through and being at an angle to the longitudinalmid-longitudinal axis of said implant.

117. (currently amended) The spinal implant of claim 116, wherein said fifth and sixth surface projections~~third plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

118. (currently amended) The spinal implant of claim 116, wherein said third, fourth, fifth, and sixth surface projections~~second and third plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

119. (currently amended) The spinal implant of claim 116, wherein one of said surface projections having~~projection of~~ said second facet configuration has~~first bone engaging structures have~~ a length approximating the combined length of two of said surface projections each having at least one of said first and third facet configuration~~of said second and third bone engaging structures~~.

120. (currently amended) The spinal implant of claim 57, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said third facet configuration further including a
~~third plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said third plurality of bone engaging structures comprising a surface projection having at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and at least one forward facing facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinal~~mid-longitudinal axis of said implant.

Claims 131-145 (cancelled).

146. (currently amended) An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end for introduction of said spinal implant into the spine, an opposite trailing end, spaced apart sides therebetween, and a ~~longitudinal~~mid-longitudinal axis passing through said leading and trailing ends;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement toward the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a plurality of surface projections~~bone engaging structures~~ formed on said upper and lower surfaces of said implant, said plurality of surface projections being adapted to engage bone, said plurality of surface projections including;

at least a first and a second surface projection each having a first facet configuration with~~one of said plurality of bone engaging structures comprising a surface projection having~~ at least a left forward side facet and a right forward side facet directed at least in part toward said leading end and said sides, respectively, and a single rearward facet directed at least in part toward said trailing end, said left and right forward side facets having at least a first portion in a plane passing through and being at an angle to the ~~longitudinal~~mid-longitudinal axis of said implant, said first and second surface projections each having a peak along a first line that is transverse to the mid-longitudinal axis of said implant; and

at least a third and a fourth surface projection each having a second facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said second facet configuration having a length and a slope, the length of said forward facet of said second facet configuration being longer than the length of said rearward portion

of said second facet configuration, the slope of said rearward portion of said second facet configuration being steeper than the slope of said forward facet of said second facet configuration, said third and fourth surface projections each having a peak along a second line that is transverse to the mid-longitudinal axis and off-set from the first line transverse to the mid-longitudinal axis, said second facet configuration of said third and fourth surface projections being different from said first facet configuration of said first and second surface projections.

147. (currently amended) The spinal implant of claim 146, ~~further comprising another plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said another plurality of bone engaging structures comprising a surface projection having at least one forward facing facet directed at least in part toward said leading end and at least one rearward portion directed at least in part toward said trailing end, said forward facing facet and said rearward portion having a length and a slope, the length of said forward facing facet being longer than the length of said rearward portion, the slope of said rearward portion being steeper than the slope of said forward facing facet, wherein said second facet configuration includes projections having opposed side facets between said forward facing facet and said rearward portion, said side facets having at least a first portion in a plane passing through and being at an angle to the ~~longitudinal~~ mid-longitudinal axis of said implant.~~

148. (currently amended) The spinal implant of claim ~~146~~147, wherein said third and fourth surface projections ~~another plurality of bone engaging structures~~ are interspersed with said first and second surface projections ~~plurality of bone engaging structures~~.

149. (currently amended) The spinal implant of claim 147, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said third facet configuration further including a
~~third plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said third plurality of bone engaging structures comprising a surface projection having at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and at least one forward facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinal~~mid-longitudinal axis of said implant.

150. (currently amended) The spinal implant of claim 149, wherein said fifth and sixth surface projection~~third plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

151. (currently amended) The spinal implant of claim 149, wherein said third, fourth, fifth, and sixth surface projections~~another and third plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

152. (currently amended) The spinal implant of claim 149, wherein one of said surface projections having projection of said second facet configuration has another bone engaging structures have a length approximating the combined length of two of said surface projections each having at least one of said first and third facet configuration of said bone engaging structures and third bone engaging structures.

153. (currently amended) The spinal implant of claim 146, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said third facet configuration further including a third plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said third plurality of bone engaging structures comprising a surface projection having at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and at least one forward facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinal mid-longitudinal axis of said implant.

154. (currently amended) The spinal implant of claim 146, further comprising another plurality of bone engaging structures formed on said upper and lower surfaces, at least

~~one of said another bone engaging structures comprising a surface projection having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said surface projections having~~wherein said second facet configuration includes opposed side facets directed generally toward said sides of said implant, said side facets located between said forward facet and said rearward portion facet of said surface projections, said side facets converging toward each other in a direction away from the base of each of said third and fourth surface projections.

155. (original) The spinal implant of claim 146, wherein said rearward facet is perpendicular to at least one of said upper and lower surfaces of said implant.

156. (original) The spinal implant of claim 146, wherein said rearward facet is at an angle to at least one of said upper and lower surfaces of said implant.

157. (original) The spinal implant of claim 156, wherein said angle is less than 90 degrees.

158. (currently amended) The spinal implant of claim ~~146~~156, wherein said rearward facets of said first and second surface projections face the same direction~~angle is greater than 90 degrees.~~

159. (original) The spinal implant of claim 146, wherein said left and right forward side facets intersect each other.

160. (original) The spinal implant of claim 146, wherein adjacent left and right forward side facets of adjacent surface projections are spaced apart to define a groove therebetween.

161. (currently amended) The spinal implant of claim 146, wherein said surface projections are oriented relative to one another to form an array.

162. (currently amended) The spinal implant of claim 146, wherein said surface projections are geometrically disposed relative to one another.

163. (original) The spinal implant of claim 146, wherein said upper and lower surfaces of said implant are at least in part planar.

164. (original) The spinal implant of claim 146, wherein said upper and lower surfaces converge along the length of said implant.

165. (original) The spinal implant of claim 146, wherein said implant comprises a material other than bone.

166. (original) The spinal implant of claim 146, wherein said implant comprises bone.

167. (original) The spinal implant of claim 166, wherein said bone includes cortical bone.

168. (original) The spinal implant of claim 146, wherein said implant comprises bone growth promoting material.

169. (original) The spinal implant of claim 168, wherein said bone growth promoting material is selected from one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

170. (original) The spinal implant of claim 146, wherein said implant is at least in part bioabsorbable.

171. (original) The spinal implant of claim 146, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent vertebral bodies.

172. (original) The spinal implant of claim 146, wherein said upper and lower surfaces include at least one opening to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.

173. (original) The spinal implant of claim 146, further comprising at least one cut cleaving said surface projection into at least two portions.

174. (original) The spinal implant of claim 173, where said cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.

175. (currently amended) An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end for introduction of said spinal implant into the spine, an opposite trailing end, spaced apart sides therebetween, and a ~~longitudinal~~ mid-longitudinal axis passing through said leading and trailing ends;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement toward the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies; and

a plurality of surface projections~~bone-engaging structures~~ formed on said upper and lower surfaces of said implant, said plurality of surface projections being adapted to engage bone, said plurality of surface projections including;

at least a first and a second surface projection each having a first facet configuration with~~one of said plurality of bone-engaging structures comprising a surface projection having~~ at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and a single forward facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane at an angle to the longitudinal~~mid-longitudinal~~ axis of said implant; and

at least a third and a fourth surface projection each having a second facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said second facet configuration having a length and a slope, the length of said forward facet of said second facet configuration being longer than the length of said rearward portion of said second facet configuration, the slope of said rearward portion of said second facet configuration being steeper than the slope of said forward facet of said second facet configuration, said third and fourth surface projections each having a peak along a second line that is transverse to the mid-longitudinal axis and off-set from the first line transverse to the mid-longitudinal axis, the second facet configuration of the third and fourth surface projections being different from the first facet configuration of the first and second surface projections.

176. (currently amended) The spinal implant of claim 175, ~~further comprising another plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said another plurality of bone engaging structures comprising a surface projection having at least one forward facing facet directed at least in part toward said leading end and at least one rearward portion directed at least in part toward said trailing end, said forward facet and said rearward portion having a length and a slope, the length of said forward facet being longer than the length of said rearward portion, the slope of said rearward portion being steeper than the slope of said forward facet, wherein said second facet configuration includes projections having opposed side facets between said forward facet and said rearward portion, said side facets having at least a first portion in a plane passing through and being at an angle to the longitudinal~~mid-~~longitudinal axis of said implant.~~

177. (currently amended) The spinal implant of claim ~~175~~176, wherein said third and fourth surface projections~~another plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

178. (currently amended) The spinal implant of claim 176, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward

facet of said third facet configuration, said third facet configuration further including a
~~second plurality of bone engaging structures formed on said upper and lower surfaces,~~
~~at least one of said plurality of bone engaging structures comprising a surface projection~~
having at least a left forward side facet and a right forward side facet directed at least in
part toward said leading end and said sides, respectively, and a single rearward facet
directed at least in part toward said trailing end, said left and right forward side facets
having at least a first portion in a plane passing through and being at an angle to the
~~longitudinal~~mid-longitudinal axis of said implant.

179. (currently amended) The spinal implant of claim 178, wherein said fifth and sixth
~~surface projections~~second plurality of bone engaging structures are interspersed with
said first and second surface projections~~plurality of bone engaging structures~~.

180. (currently amended) The spinal implant of claim 178, wherein said third, fourth,
fifth, and sixth surface projections~~another and second plurality of bone engaging~~
~~structures~~ are interspersed with said first and second surface projections~~plurality of~~
~~bone engaging structures~~.

181. (currently amended) The spinal implant of claim 178, wherein one of said surface
projections havingef said second facet configuration has~~another bone engaging~~
~~structures have~~ a length approximating the combined length of two surface projections
each having at least one of said first and third facet configurations~~said surface~~
~~projections of said bone engaging structures and second bone engaging structures~~.

182. (currently amended) The spinal implant of claim 175, further comprising at least a
fifth and a sixth surface projection each having a third facet configuration with at least
one forward facet directed at least in part toward the leading end and at least one

rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said third facet configuration further including a
~~second plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said second plurality of bone engaging structures comprising a surface projection having at least a left forward side facet and a right forward side facet directed at least in part toward said leading end and said sides, respectively, and a single rearward facet directed at least in part toward said trailing end, said left and right forward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinal~~mid-longitudinal axis of said implant.

183. (currently amended) The spinal implant of claim 175, ~~further comprising another plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said another bone engaging structures comprising a surface projection having at least one forward facing facet directed at least in part toward said leading end and at least one rearward facet directed at least in part toward said trailing end, each of said forward facet and rearward facet having a length and a slope, the length of said forward facet being longer than said rearward facet, the slope of said rearward facet being steeper than the slope of said forward facet, said surface projections having~~wherein said second facet configuration includes opposed side facets directed generally toward said sides of said implant, said side facets located between said forward facet and said

rearward portionfacet of said surface projections, said side facets converging toward each other in a direction away from the base of each of said third and fourth surface projections.

184. (currently amended) The spinal implant of claim 175, wherein said forward facets of said first and second surface projections face the same direction~~facet is perpendicular to at least one of said upper and lower surfaces of said implant.~~

185. (currently amended) The spinal implant of claim 175, wherein said forward facet of each of said first and second surface projections is at an angle to at least one of said upper and lower surfaces of said implant.

186. (original) The spinal implant of claim 185, wherein said angle is less than 90 degrees.

187. (original) The spinal implant of claim 175, wherein said left and right rearward side facets intersect each other.

188. (original) The spinal implant of claim 175, wherein adjacent left and right rearward side facets of adjacent surface projections are spaced apart to define a groove therebetween.

189. (currently amended) The spinal implant of claim 175, wherein said surface projections are oriented relative to one another to form an array.

190. (currently amended) The spinal implant of claim 175, wherein said surface projections are geometrically disposed relative to one another.

191. (original) The spinal implant of claim 175, wherein said upper and lower surfaces of said implant are at least in part planar.

192. (original) The spinal implant of claim 175, wherein said upper and lower surfaces converge along the length of said implant.

193. (original) The spinal implant of claim 175, wherein said implant comprises a material other than bone.

194. (original) The spinal implant of claim 175, wherein said implant comprises bone.

195. (original) The spinal implant of claim 194, wherein said bone includes cortical bone.

196. (original) The spinal implant of claim 175, wherein said implant comprises bone growth promoting material.

197. (original) The spinal implant of claim 196, wherein said bone growth promoting material is selected from one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

198. (original) The spinal implant of claim 175, wherein said implant is at least in part bioabsorbable.

199. (original) The spinal implant of claim 175, wherein said implant is a motion preserving device adapted to space apart and allow motion between the adjacent vertebral bodies.

200. (original) The spinal implant of claim 175, wherein said upper and lower surfaces include at least one opening to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.

201. (withdrawn) The spinal implant of claim 175, further comprising at least one cut cleaving said surface projection into at least two portions.

202. (withdrawn) The spinal implant of claim 201, where said cut penetrates said surface projection at a depth substantially equal to that of the height of said surface projection.

203. (currently amended) An interbody spinal implant for insertion between adjacent vertebral bodies of a human spine, said implant comprising:

a leading end for introduction of said spinal implant into the spine, an opposite trailing end, spaced apart sides therebetween, and a ~~longitudinal~~mid-longitudinal axis passing through said leading and trailing ends;

opposite upper and lower surfaces between said leading and trailing ends and said spaced apart sides, said upper surface adapted for placement in engagement with the bone of one of the vertebral bodies and said opposite lower surface adapted for placement toward the bone of the other of the vertebral bodies when said implant is placed between the adjacent vertebral bodies;

at least a first and a second surface projection~~plurality of bone engaging structures~~ formed on said upper and lower surfaces, ~~at least one of said first plurality of bone engaging structures comprising a surface projection~~each of said first and second surface projections having at least one forward facing facet directed at least in part toward said leading end and at least one rearward portion directed at least in part toward said trailing end, said forward facet and said rearward portion having a length and a slope, the length of said forward facet being longer than the length of said rearward portion, the slope of said rearward portion being steeper than the slope of said forward facet, said projections having a left forward~~deposed side~~ facet and a right forward side facet directed toward said leading end and said sides, respectively, of said

~~implant facets between said forward facet and said rearward portion, each of said left forward and right forward side facets having at least a first portion in a plane passing through and being at an angle to the mid-longitudinal longitudinal axis of said implant at an angle to the longitudinal axis;~~

~~at least a third and a fourth surface projectionsecond plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said second plurality of bone engaging structures comprising a surface projectioneach of said third and fourth surface projections having at least a left forward side facet and a right forward side facet directed at least in part toward said leading end and said sides, respectively, and a single rearward facet directed at least in part toward said trailing end, said left and right forward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinalmid-longitudinal axis of said implant; and~~

~~at least a fifth and a sixth surface projectionthird plurality of bone engaging structures formed on said upper and lower surfaces, at least one of said third plurality of bone engaging structures comprising a surface projectioneach of said fifth and sixth surface projections having at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and a single forward facet directed at least in part toward said leading end, said left and right rearward side facets having at least a first portion in a plane passing through and being at an angle to the longitudinalmid-longitudinal axis of said implant.~~

204. (currently amended) The spinal implant of claim 203, wherein said rearward ~~facet~~portion of said third and fourth surface projections~~first plurality of bone engaging~~

~~structures~~ is perpendicular to at least one of said upper and lower surfaces of said implant.

205. (currently amended) The spinal implant of claim 203, wherein said rearward portion of said first and second surface projections~~plurality of bone engaging structures~~ is at an angle to at least one of said upper and lower surfaces of said implant.

206. (previously presented) The spinal implant of claim 205, wherein said angle is less than 90 degrees.

207. (currently amended) The spinal implant of claim 205, wherein said forward facets of said first and second surface projections face the same direction~~angle is greater than 90 degrees~~.

208. (currently amended) The spinal implant of claim 203, wherein said left and right forward~~opposed~~ side facets of said third and fourth surface projections~~first plurality of bone engaging structures~~ intersect each other.

209. (currently amended) The spinal implant of claim 208, wherein said left and right forward~~opposed~~ side facets of said third and fourth surface projections~~first plurality of bone engaging structures~~ converge to form a peak at the top of each of said third and fourth surface projections~~surface projections of said first plurality of bone engaging structures~~.

210. (currently amended) The spinal implant of claim 209, wherein said peaks are aligned along lines that are at least one of perpendicular, parallel, and diagonal to the ~~longitudinal~~ mid-longitudinal axis of said implant.

211. (currently amended) The spinal implant of claim 203, wherein ~~said side facets of~~ said first and second surface projections~~plurality of bone engaging structures~~ have a

second portion in a plane passing through and being at an angle to the mid-longitudinal axis, wherein the angles of said first portion and said second portion are different.

212. (currently amended) The spinal implant of claim 203, wherein rearward facets of said third and fourth surface projections face the same direction~~at least one of said surface projections of said first plurality of bone engaging structures includes a left forward side facet and a right forward side facet directed toward said leading end and said sides, respectively, of said implant.~~

213. (currently amended) The spinal implant of claim 203, wherein each at least one of said surface projections of said first and second surface projections~~plurality of bone engaging structures includes a left rearward side facet and a right rearward side facet directed toward said trailing end and sides, respectively, of said implant.~~

214. (currently amended) The spinal implant of claim 203~~212~~, wherein each at least one of said surface projections of said first and second surface projections~~plurality of bone engaging structures includes at least five facets a left rearward side facet and a right rearward side facet directed toward said trailing end and sides, respectively, of said implant.~~

215. (currently amended) The spinal implant of claim 203, wherein adjacent side facets of adjacent surface projections of said first and second surface projections~~plurality of bone engaging structures are spaced apart to define a groove therebetween.~~

216. (previously presented) The spinal implant of claim 215, wherein a plurality of adjacent surface projections are spaced apart to form a plurality of grooves therebetween.

217. (currently amended) The spinal implant of claim 216, wherein at least one of said grooves is parallel to the longitudinal~~mid-longitudinal~~ axis of said implant.

218. (currently amended) The spinal implant of claim 216, wherein at least one of said grooves is at an angle to the longitudinal~~mid-longitudinal~~ axis of said implant.

219. (currently amended) The spinal implant of claim 218, wherein said angle is less than 90 degrees to the longitudinal~~mid-longitudinal~~ axis of said implant.

220. (previously presented) The spinal implant of claim 218, wherein at least two of said grooves cross each other.

221. (previously presented) The spinal implant of claim 216, wherein at least one of said grooves has a horizontal cross-sectional shape selected from one of a v-shape, u-shape, and a box-like shape.

222. (previously presented) The spinal implant of claim 203, wherein said upper and lower surfaces of said implant are at least in part arcuate.

223. (previously presented) The spinal implant of claim 203, wherein said upper and lower surfaces of said implant are at least in part planar.

224. (previously presented) The spinal implant of claim 203, wherein said upper and lower surfaces converge along the length of said implant.

225. (previously presented) The spinal implant of claim 203, wherein said upper and lower surfaces include at least one opening to permit bone growth from one of the adjacent vertebral bodies to the other one of the adjacent vertebral bodies through said implant.

226. (previously presented) The spinal implant of claim 203, wherein said implant has an internal chamber and an access opening for accessing said internal chamber.

227. (currently amended) The spinal implant of claim 203, wherein said third, fourth, fifth, and sixth surface projections~~second and third plurality of bone engaging structures~~ are interspersed with said first and second surface projections~~plurality of bone engaging structures~~.

228. (currently amended) The spinal implant of claim 203, wherein each~~said surface projection of said first and second surface projections~~ bone engaging structures have a length approximating the combined length of one of said third and fourth surface projections of said second and one of said fifth and sixth surface projection~~third bone engaging structures~~.

229. (currently amended) The spinal implant of claim 203, wherein said forward facets~~facet of each of said fifth and sixth surface projections face the same direction~~~~third plurality of bone engaging structures is perpendicular to at least one of said upper and lower surfaces of said implant.~~

230. (currently amended) The spinal implant of claim 203, wherein said forward facets~~facet of each of said fifth and sixth surface projection~~~~third plurality of bone engaging structures~~ is at an angle to at least one of said upper and lower surfaces of said implant.

231. (previously presented) The spinal implant of claim 230, wherein said angle is less than 90 degrees.

232. (currently amended) The spinal implant of claim 203, wherein said left and right rearward side facets of each of said fifth and sixth surface projection~~third plurality of bone engaging structures~~ intersect each other.

233. (currently amended) The spinal implant of claim 203, wherein adjacent left and right rearward side facets of adjacent surface projections of said fifth and sixth surface projection~~third plurality of bone engaging structures~~ are spaced apart to define a groove therebetween.

234. (previously presented) The spinal implant of claim 203, wherein said implant is made at least in part of bone.

235. (previously presented) The spinal implant of claim 203, wherein said implant is made at least in part of a metal.

236. (previously presented) The spinal implant of claim 203, in combination with a fusion promoting substance.

237. (previously presented) The spinal implant of claim 236, wherein said fusion promoting substance includes at least one of bone morphogenetic protein, hydroxyapatite, genes coding for the production of bone, and bone.

238. (previously presented) The spinal implant of claim 57, in combination with a fusion promoting substance.

239. (previously presented) The spinal implant of claim 238, wherein said fusion promoting substance includes at least one of bone morphogenetic protein, hydroxyapatite, genes coding for the production of bone, and bone.

240. (previously presented) The spinal implant of claim 146, in combination with a fusion promoting substance.

241. (previously presented) The spinal implant of claim 240, wherein said fusion promoting substance includes at least one of bone morphogenetic protein, hydroxyapatite, genes coding for the production of bone, and bone.

242. (previously presented) The spinal implant of claim 175, in combination with a fusion promoting substance.

243. (previously presented) The spinal implant of claim 242, wherein said fusion promoting substance includes at least one of bone morphogenetic protein, hydroxyapatite, genes coding for the production of bone, and bone.

244. (new) The spinal implant of claim 57, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said fifth and sixth surface projections each having a peak along a third line that is transverse to the mid-longitudinal axis and off-set from the first and second lines, said third facet configuration of said fifth and sixth surface projections being different from said first facet configuration of said first and second surface projections and said second facet configuration of said third and fourth surface projections.

245. (new) The spinal implant of claim 57, wherein at least one of said surface projections along the first line have a maximum height from one of said upper and lower surfaces of said implant that is substantially the same as the maximum height of one of said surface projections along the second line.

246. (new) The spinal implant of claim 57, wherein said implant includes at least three surface projections having said first facet configuration along the first line and at least three surface projections having said second facet configuration along the second line.

247. (new) The spinal implant of claim 57, wherein said implant includes at least four surface projections having said first facet configuration along the first line and at least four surface projections having said second facet configuration along the second line.

248. (new) The spinal implant of claim 57, wherein said implant includes at least five surface projections having said first facet configuration along the first line and at least five surface projections having said second facet configuration along the second line.

249. (new) The spinal implant of claim 146, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said fifth and sixth surface projections each having a peak along a third line that is transverse to the mid-longitudinal axis and off-set from the first and second lines, said third facet configuration of said fifth and sixth surface projections being different from said first facet configuration of said first and second surface projections and said second facet configuration of said third and fourth surface projections.

250. (new) The spinal implant of claim 146, wherein at least one of said surface projections along the first line have a maximum height from one of said upper and lower surfaces of said implant that is substantially the same as the maximum height of one of said surface projections along the second line.

251. (new) The spinal implant of claim 146, wherein said implant includes at least three surface projections having said first facet configuration along the first line and at least three surface projections having said second facet configuration along the second line.

252. (new) The spinal implant of claim 146, wherein said implant includes at least four surface projections having said first facet configuration along the first line and at least four surface projections having said second facet configuration along the second line.

253. (new) The spinal implant of claim 146, wherein said implant includes at least five surface projections having said first facet configuration along the first line and at least five surface projections having said second facet configuration along the second line.

254. (new) The spinal implant of claim 175, further comprising at least a fifth and a sixth surface projection each having a third facet configuration with at least one forward facet directed at least in part toward the leading end and at least one rearward portion directed at least in part toward the trailing end, said forward facet and said rearward portion of said third facet configuration having a length and a slope, the length of said forward facet of said third facet configuration being longer than the length of said rearward portion of said third facet configuration, the slope of said rearward portion of said third facet configuration being steeper than the slope of said forward facet of said third facet configuration, said fifth and sixth surface projections each having a peak

along a third line that is transverse to the mid-longitudinal axis and off-set from the first and second lines, said third facet configuration of said fifth and sixth surface projections being different from said first facet configuration of said first and second surface projections and said second facet configuration of said third and fourth surface projections.

255. (new) The spinal implant of claim 175, wherein at least one of said surface projections along the first line have a maximum height from one of said upper and lower surfaces of said implant that is substantially the same as the maximum height of one of said surface projections along the second line.

256. (new) The spinal implant of claim 175, wherein said implant includes at least three surface projections having said first facet configuration along the first line and at least three surface projections having said second facet configuration along the second line.

257. (new) The spinal implant of claim 175, wherein said implant includes at least four surface projections having said first facet configuration along the first line and at least four surface projections having said second facet configuration along the second line.

258. (new) The spinal implant of claim 175, wherein said implant includes at least five surface projections having said first facet configuration along the first line and at least five surface projections having said second facet configuration along the second line.

259. (new) The spinal implant of claim 203, wherein at least one of said surface projections along the first line have a maximum height from one of said upper and lower surfaces of said implant that is substantially the same as the maximum height of one of said surface projections along the second line.